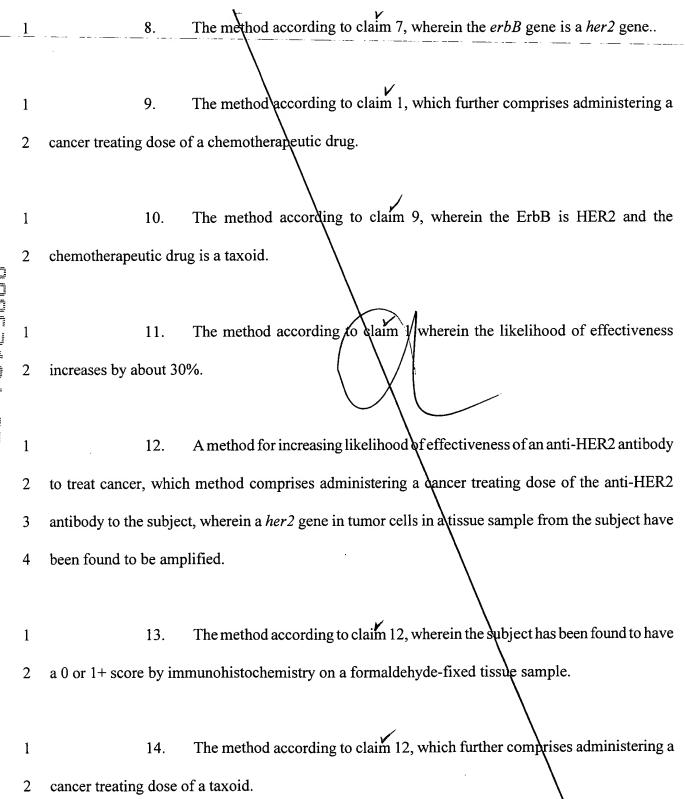WHAT IS CLAIMED:

1   1.   A method for increasing likelihood of effectiveness of an ErbB antagonist

2   cancer treatment, which method comprises administering a cancer treating dose of the ErbB

3   antagonist to a subject, wherein an *erbB* gene in tumor cells in a tissue sample from the subject has

4   been found to be amplified.

1   2.   The method according to claim 1, wherein the ErbB is a HER2 protein.

1   3.   The method according to claim 2, wherein the cancer is breast cancer.

1   4.   The method according to claim 3, wherein the subject has been found to have

2   a 0 or 1+ score by immunohistochemistry on a formaldehyde-fixed tissue sample.

1   5.   The method according to claim 1, wherein the ErbB antagonist is an anti-ErbB

2   antibody.

1   6.   The method according to claim 5, wherein the ErbB is HER2, and the

2   antibody is recombinant human monoclonal antibody (rhuMAb) 4D5.

1   7.   The method according to claim 1 wherein the *erbB* gene amplification is

2   detected by detecting fluorescence of a fluorescent-labeled nucleic acid probe hybridized to the gene.

1   8.   The method according to claim 7, wherein the *erbB* gene is a *her2* gene..

1   9.   The method according to claim 1, which further comprises administering a

2   cancer treating dose of a chemotherapeutic drug.

1   10.   The method according to claim 9, wherein the ErbB is HER2 and the

2   chemotherapeutic drug is a taxoid.

1   11.   The method according to claim 1 wherein the likelihood of effectiveness

2   increases by about 30%.

1   12.   A method for increasing likelihood of effectiveness of an anti-HER2 antibody

2   to treat cancer, which method comprises administering a cancer treating dose of the anti-HER2

3   antibody to the subject, wherein a *her2* gene in tumor cells in a tissue sample from the subject have

4   been found to be amplified.

1   13.   The method according to claim 12, wherein the subject has been found to have

2   a 0 or 1+ score by immunohistochemistry on a formaldehyde-fixed tissue sample.

1   14.   The method according to claim 12, which further comprises administering a

2   cancer treating dose of a taxoid.

1   15.   A pharmaceutical package comprising:

2   (a)   a container comprising an ErbB antagonist for treating a cancer; and

3   (b)   instructions to administer the ErbB antagonist to a subject if an *erbB* gene in

4   tumor cells in a tissue sample from the subject is amplified.

1   16.   The package of claim 15, wherein the ErbB antagonist is an antibody.

1   17.   The package of claim 16, wherein the antibody is an anti-HER2 antibody.

1   18.   The package of claim 17, wherein the anti-HER2 antibody is rhuMAb 4D5

2   (Herceptin®).

1   19.   The package of claim 15, wherein the instructions further comprise directions

2   to administer a chemotherapeutic drug in combination with the ErbB antagonist.

1   20.   The package of claim 19, wherein the chemotherapeutic drug is a taxoid.

1   21.   A method for identifying a patient disposed to respond favorably to an ErbB

2   antagonist for treating cancer, which method comprises detecting *erbB* gene amplification in tumor

3   cells in a tissue sample from the patient.

1   22.   The method according to claim 21, wherein the subject has been found to have

2   a 0 or 1+ score by immunohistochemistry on a formaldehyde-fixed tissue sample.

1   23.   The method according to claim 21, wherein the *erbB* is *her2*.